

REMARKS

A Power of Attorney to the customer number of the undersigned has been made of record.

Previous claims 11, 13-15, 19-22 and 28 are cancelled in favor of new claims 29-40. The form of the new claims conforms more closely to the claims of the application as filed, and to the form of the claims presented in co-pending application Ser. No. 10/398,179, which claims technically related subject matter.

New claim 29 is independent and recites a “filter aid.” Claim 29 also incorporates the feature that the filter aid comprises a comminuted form of the compounded polymer (support at, e.g. page 8, lines 10-19). This captures an important aspect of the invention, since the compounded polymer, when used to filter and stabilize an aqueous liquid such as beer, is used in a comminuted form (e.g. pellets, shreds, powder). When the polymer a) and the at least one stabilizer component b) have been compounded and comminuted in the manner disclosed in the present application, the individual units of the comminuted product (pellets, shreds, powder grains, etc.) contains both polymer a) and component b) and perform both filtration and stabilization. When so prepared, the individual grains/pellets/particles etc. of the comminuted product can perform the functions accomplished in the prior art using two discrete products. If two discrete products were to be used as a mixture, however, the two components can segregate from one another. The compounded, comminuted product comprising both components is thus particularly suited for use in filtering aqueous liquids.

Additional claims 30-40 are supported by the specification as filed and no new matter has been added.¹

¹ Exemplary support for the additional added claims is found as follows: claim 30 – page 3, ll. 20-23, page 4, line 42- page 5, line 2, and page 5, line 15; claim 31 – page 5, line 15; claim 32 – page 11, line 11; claims 33-36 – page 3, ll. 29-42; claim 3 – page 8, ll. 1-4; claim 38 – page 8, line 4; claim 39 – page 8, line 19; claim 40 – page 4, ll. 36-40.

Rejection of Prior Claims under 35 USC 112, second paragraph

Prior claims 11, 13-15, 19-22 and 28 were rejected under 35 USC 112, second paragraph as being indefinite. Applicants respectfully submit that the scope of the added claims is clear when read in light of the supporting specification.²

The current claims recite a filter aid which has been compounded and wherein the compounded product (polymer) has been comminuted into granules, powders, shreds or the like. The critical aspect of the invention is not in how, specifically, the compounding is done (e.g. melt extrusion), but in the comminuted form of a compounded product and its use, as described above.

The amended claims recite “polyvinylpolypryrrolidone” which is crosslinked polyvinylpyrrolidone, which is inherently insoluble (see, e.g. the discussion on pages 3-4 of the reference identified as “60th Anniversary” under the heading “Crosslinked Polymers”). As prior Official Actions have noted, and as 60th Anniversary points out, polyvinylpolypryrrolidone has been used in the prior art for stabilization of beverages. Its insolubility is one of its properties which makes it useful for beverage filtering.³ Since PVPP is water-insoluble by nature, it should not be necessary to recite that property of PVPP in the claims.

Rejection of Prior Claims under 35 USC 103

Prior claims 11, 13-15, 19-22 and 28 were rejected under 35 USC 103 as unpatentable over the combined teachings of Butterworth ‘023, Van Den Eynde *et al.* ‘459, 60th Anniversary of Povidone, July 1999 (“60th Anniversary”), Wedlock ‘369, and Admitted Prior Art.

² In determining whether a claim is sufficiently definite for purposes of 35 U.S.C. 112, the relevant question is whether one skilled in the art would understand the boundaries of the claim when read in light of the specification. See, e.g. *Exxon Research and Engineering v. U.S.*, 60 U.S.P.Q. 2d 1272 (Fed. Cir. 2001); *Personalized Media Communications v. ITC*, 48 U.S.P.Q. 2d 1880, 1888 (Fed. Cir. 1998).

³ See, for example, the citation from Brewer’s Guardian cited in the accompanying SB/08 form describing the product “Polyclar.” See for example the 2d page of that document, middle column, where it is explained that PVPP is a cross-linked polymer of PVP and is insoluble in water, alcohol and acid.

Butterworth '023 discloses a process of improving chill haze stability using a combination of agents as a precoat layer (or by their addition upstream of the filter). An exemplary combination of agents is a mixture of synthetic metal silicate and polyvinylpyrrolidone (see Col. 3, ll. 23-44 and 61-68). Butterworth '023 does not disclose compounding synthetic metal silicate (or any other filtration agent) with a polymer and comminuting the compounded product.

Van den Eynde *et al* disclose use of regenerable polymer grains to filter beverages (e.g. beer). The polymer used to form the grains can be, for example, polyamide or polyethylene. Col. 3, ll. 60-67. A stabilization step can be carried out during or after the filtration step. Col. 4, ll. 45-54. In an example of concomitant filtration and stabilization, nylon grains (RILSAN®) are used in a mixture with PVPP. Col. 7, ll. 17-21. Van den Eynde *et al* does not disclose compounding a polymer with a stabilizing agent and comminuting the compounded product.

60th Anniversary relates the history of Povidone (polyvinylpyrrolidone) since its first patenting in 1939. Its use as a pharmaceutical excipient is highlighted (e.g. to improve the solubility and dissolution rate of solid and liquid dosage forms; page 3, 1st column, bottom). Crosslinked polyvinylpyrrolidone is discussed at page 3-4, and the various prior art uses of the crosslinked polyvinylpyrrolidone are discussed, which includes beverage filtration. Page 4 also discloses incorporating a drug into Kollidon as a pharmaceutical matrix (see page 4 under the heading "Polymer/Drug Melt Extrusion"). In 60th Anniversary, Kollidon is described as distinct from Crospovidone (crosslinked PVP made by popcorn polymerization; see page 4, 1st column), and the reference does not suggest to melt extrude Crospovidone with a drug (or with anything else). 60th Anniversary does not disclose compounding a polymer (polyamide or polyolefin) with PVPP or with any other type of beverage stabilizing agent within the scope of part b) of the current claims.

Wedlock discloses a product prepared by co-extruding polyvinylpyrrolidone with a chemical crop protection agent, cooling, and milling the product. Col. 2, ll. 51-55. The goal is fast release of the active agent. Col. 2, ll. 43-46. While it is suggested that "any of the available

forms” of PVP are useful to make the product (col. 5, ll. 25-27), there is no specific disclosure of using crosslinked PVP. Wedlock refers to PVP (while making no specific reference to PVPP) and indicates water-soluble PVP (making no specific reference to water-insoluble or crosslinked PVP). See col. 5, ll. 21-35 of Wedlock. The example cited by Wedlock as very suitable (col. 5, l. 46) and used in Wedlock’s examples is Agrimer 30, a water-soluble PVP.⁴ Applicants submit that nothing in Wedlock’s disclosure suggest that PVPP is contemplated as suitable by Wedlock for the use in the disclosed PVP/crop agent melt-extruded products. Wedlock does not disclose compounding a polymer (polyamide or polyolefin) with a stabilizing agent (PVPP). Wedlock is non-analogous to the art of beverage filtration.

Applicants submit that the combined teachings of the references would not have suggested the presently-claimed product, or its use in the process as claimed, absent the hindsight of reading the present application.

While the Official Action is correct that the prior art suggests to perform filtration and stabilization simultaneously (e.g. top of page 4), the prior art does not suggest compounding a filtration polymer with a stabilizer substance and comminuting the compounded product to yield a comminuted filter aid which performs both of those functions.

On page 5, the Official Action combines 60th Anniversary with Butterworth and Ven den Eynde based on the suggestion in the latter references to perform filtration and stabilization steps at the same time. However, both Butterworth and Ven den Eynde disclose that it is satisfactory for this purpose to mix the polymer filtration agent and the stabilization agent (e.g. PVPP) and there is no suggestion of the desirability of – or the need for – compounding different components together and comminuting the compounded product.

60th Anniversary mentions on page 4 (the page highlighted in the Official Action) that “Kollidon grades” of PVP have been compounded with drugs. On the same page, but under different subject headings, it is disclosed that PVPP has been used in the art for clarifying

⁴ According to the MSDS for Agrimer 30, it is soluble in water. The MSDS can be accessed online at http://online1.ispcorp.com/MSDS/AGRIMER%2030_EN_7A084D.pdf

beverages and for beverage filtration. There is no suggestion to compound PVPP with another polymer, or to compound PVPP with any other substance for use in beverage filtration/clarification.⁵

Wedlock similarly provides no suggestion to compound PVPP with another polymer or to compound PVPP with any other substance.

While it was certainly within the skill of a person in the art to compound a polyolefin or polyamide with a stabilization component b), the prior art provides no clear reason to make that product, or to use that product as a beverage filtration aid for aqueous liquids. For this reason, the claimed product and its use would not have been *prima facie* obvious from the cited references.

The “Admitted Prior Art” is not re-stated in the current Official Action, but it can certainly be acknowledged that PVPP prepared by popcorn polymerization is not novel *per se*, and the use of PVPP as a filtration aid for beverages is not novel *per se*. Both of these points are evidenced, for example, by 60th Anniversary. The scope of admitted prior art, as understood, does not go beyond what is disclosed by the prior art references cited and discussed above.

For the above reasons, claims 29-40 are urged to patentably distinguish over the prior art of record.

A further information disclosure statement is being filed herewith which updates the identification and status of related applications.

Entry of new claims 29-40 and favorable action on those claims is respectfully solicited.

⁵ The Examiner notes that PVPP is discussed as a beverage filtration agent on the same page of 60th Anniversary that melt extrusion with Kollidon grades is disclosed. While that is correct, it is also correct that the co-extrusion disclosure of the document is limited to disclosing that drugs can be co-extruded into PVP as matrix. The proximity of the disclosure of PVP as a melt extrusion matrix for drugs and the disclosure of PVPP as a beverage filtration aid in the same review article does not necessarily connect the disclosures technically. The article provides no suggestion to use melt extruded products of PVPP with another substance in beverage filtration.

The fee for one month extension of time is paid by credit card. If any additional fee is determined to be due, please charge Account No. 03-2775, upon which the undersigned is authorized to draw.

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Respectfully submitted,

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